



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/072,998	02/12/2002	Sachiko Nishikino	219454US3	5099
22850	7590	07/11/2006	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			ROTH, LAURA K	
			ART UNIT	PAPER NUMBER
			2852	

DATE MAILED: 07/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/072,998

Applicant(s)

NISHIKINO ET AL.

Examiner

Laura K. Roth

Art Unit

2852

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-83 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-83 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Drawings

The drawings were received on 26 April 2006. These drawings are accepted.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-3, 6, 9, 11, 14-17, 22, 24, 45-47, 50, 53, 55, 58-60, 68-70, 73, 76, 78, and 81-83 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsutsui et al. (US 4,728,988) in view of Watanabe et al. (US 5,441,456) and in view of Rampe (US 4,946,427).

Regarding claim 1, Tsutsui et al. (US 4,728,988) teach a drive unit comprising: a drive shaft (fig.4, #29); a drive pulley attached to said drive shaft (fig.4, #25, #26); and a drive wire driven by said drive pulley (fig.4, #13, #14) so as to move a movable body (fig.4, #3, #4) wherein said drive pulley includes a drum (fig.4, part of #25 and #26 around which the drive wire is wound) and an attachment member having an attachment strip (fig.4, unlabelled flange seen projecting on shaft #29 from #26).

Regarding claim 17, Tsutsui et al. (US 4,728,988) teach a drive unit comprising: a drive shaft (fig.4, #29); a drive pulley attached to said drive shaft (fig.4, #25, #26); and a drive wire driven by said drive pulley (fig.4, #13, #14) so as to move a movable body (fig.4, #3, #4) wherein said drive pulley includes a drum (fig.4, part of #25 and #26

around which the drive wire is wound) and an attachment member having an attachment strip (fig.4, unlabelled flange seen projecting on shaft #29 from #26).

Regarding claim 22, Tsutsui et al. (US 4,728,988) teach a drive unit comprising: a drive shaft (fig.4, #29); a drive pulley attached to said drive shaft (fig.4, #25, #26); and a drive wire driven by said drive pulley (fig.4, #13, #14) so as to move a movable body (fig.4, #3, #4), wherein said drive pulley comprises at least one flange (fig.2, #25, though denoting the pulley, points one of two flanges) wherein said drive pulley includes a drum (fig.4, part of #25 and #26 around which the drive wire is wound) and an attachment member having an attachment strip (fig.4, unlabelled flange seen projecting on shaft #29 from #26).

Regarding claim 25, Tsutsui et al. (US 4,728,988) teach a method of producing a drive unit moving a movable body by a drive wire driven by a drive pulley attached to a drive shaft which comprises fixing the drive pulley (fig.4, a drive unit #1 moving #3/#4 by a drive wire #13/#14 by a drive pulley #25/#26 attached to a drive shaft #29 is produced by some means) said drive pulley includes a drum (fig.4, part of #25 and #26 around which the drive wire is wound) and an attachment member having an attachment strip (fig.4, unlabelled flange seen projecting on shaft #29 from #26).

Regarding claim 45, Tsutsui et al. (US 4,728,988) teach an image reading apparatus comprising: an optical system for scanning and reading an image (fig.4, #17, #19); a running body including said optical system (fig.4, #3, #4); and a drive unit (fig.4, #1), the drive unit comprising: a drive shaft (fig.4, #29); a drive pulley attached to said drive shaft (fig.4, #25, #26); and a drive wire driven by said drive pulley (fig.4, #13, #14)

so as to move the running body (fig.4, #3, #4) wherein said drive pulley includes a drum (fig.4, part of #25 and #26 around which the drive wire is wound) and an attachment member having an attachment strip (fig.4, unlabelled flange seen projecting on shaft #29 from #26).

Regarding claim 68, Tsutsui et al. (US 4,728,988) teach an imaging apparatus comprising: an image reading apparatus (fig.4), the image reading apparatus comprising: an optical system for scanning and reading an image (fig.4, #17, #19); a running body including said optical system (fig.4, #3, #4); and a drive unit (fig.4, #1), the drive unit comprising: a drive shaft (fig.4, #29); a drive pulley attached to said drive shaft (fig.4, #25, #26); and a drive wire driven by said drive pulley (fig.4, #13, #14) so as to move the running body (fig.4, #3, #4) wherein said drive pulley includes a drum (fig.4, part of #25 and #26 around which the drive wire is wound) and an attachment member having an attachment strip (fig.4, unlabelled flange seen projecting on shaft #29 from #26).

However, Tsutsui et al. (US 4,728,988) fail to teach a pulley formed by press working or rolling or a pulley formed of a steel plate or thin-plate material.

Regarding claim 1, Watanabe et al. (US 5,441,456) teach a pulley with a drum and an attachment member having an attachment strip (fig.5, drum #34; attachment member/strip, area near #301 and #361) wherein said pulley is formed by press working or rolling (col.1, ln.50-52).

Regarding claim 17, Watanabe et al. (US 5,441,456) teach a pulley with a drum and an attachment member having an attachment strip (fig.5, drum #34; attachment

member/strip, area near #301 and #361) formed by press working (col.1, ln.50-52)
wherein said pulley is formed to be press-fitted to a shaft (col.1, ln.45-47).

Regarding claim 22, Watanabe et al. (US 5,441,456) teach a pulley with a drum and an attachment member having an attachment strip (fig.5, drum #34; attachment member/strip, area near #301 and #361) formed by press working (col.1, ln.50-52).

Regarding claim 25, Watanabe et al. (US 5,441,456) teach a pulley with a drum and an attachment member having an attachment strip (fig.5, drum #34; attachment member/strip, area near #301 and #361) wherein said pulley is formed by press working or rolling (col.1, ln.50-52).

Regarding claim 45, Watanabe et al. (US 5,441,456) teach a pulley with a drum and an attachment member having an attachment strip (fig.5, drum #34; attachment member/strip, area near #301 and #361) wherein said pulley is formed by press working or rolling (col.1, ln.50-52).

Regarding claim 68, Watanabe et al. (US 5,441,456) teach a pulley with a drum and an attachment member having an attachment strip (fig.5, drum #34; attachment member/strip, area near #301 and #361) wherein said pulley is formed by press working or rolling (col.1, ln.50-52).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the drive unit of Tsutsui et al. (US 4,728,988) with the press-formed pulley of Watanabe et al. (US 5,441,456) in order to decrease the cost and reduce the weight of the unit (col.1, ln.56-58).

However, Tsutsui et al. (US 4,728,988) further fail to teach an attachment member having at least one through hole formed therein for inserting a fixing member to secure said attachment member to said drive shaft.

Regarding claims 1, 17, 22, 25, 45, and 68, Rampe (US 4,946,427) teaches a pulley utilizing an attachment member having an attachment strip (fig.3, #108) fixed thereto and having at least one through hole (fig.3, part which takes #80) formed therein for inserting a fixing member (fig.3, #80) to secure said attachment member to said drive shaft (fig.3, #104; col.6, ln.47-53).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the attachment strip on the pulley of Tsutsui et al. (US 4,728,988) with the through holes and fixing member of Rampe (US 4,946,427) in order to connect the pulley securely to the shaft (col.6, ln.52-53).

Claims 2-3, 6, 9, 11, 14-16, 22, 24, 46-47, 50, 53, 55, 58-60, 69-70, 73, 76, 78, and 81-83 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsutsui et al. (US 4,728,988) in view of Watanabe et al. (US 5,441,456) and in view of Rampe (US 4,946,427) by the same reasoning as presented in the first office action.

Claim 19 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Tsutsui et al. (US 4,728,988) in view of Watanabe et al. (US 5,441,456) as presented in the first office action.

Claims 4, 5, 7, 8, 12, 13, 23, 48, 49, 51, 52, 56, 57, 71, 72, 74, 75, 79, and 80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsutsui et al. (US 4,728,988) in view of Watanabe et al. (US 5,441,456) and in view of Rampe (US 4,946,427) as applied to claims 1, 3, 6, 11, 22, 45, 47, 50, 55, 68, 70, 73, and 78 above, and further in view of Le Tourneau (US 2,374,111) by the same reasoning as presented in the first office action.

Claims 10, 18, 20, 21, 54, and 77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsutsui et al. (US 4,728,988) in view of Watanabe et al. (US 5,441,456) and in view of Rampe (US 4,946,427) as applied to claims 1, 17, 19, 20, 45, and 68 above, and further in view of Nelson (US 1,742,484) by the same reasoning as presented in the first office action.

Claims 31-35, 38-42, and 61-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsutsui et al. (US 4,728,988) in view of Nelson (US 1,742,484) and in view of Rampe (US 4,946,427).

Regarding claim 31, Tsutsui et al. (US 4,728,988) teach a running body moving unit moving a running body by a mechanism transmitting a driving force to the running body through wires wound around a plurality of drive pulleys attached to a drive shaft without slack (fig.4, #1), wherein the drive shaft is provided with screw holes for fixing the drive pulleys to the drive shaft (fig.2, shaft #29 is attached to pulley #25 via a screw hole, unlabelled, through a hub of the pulley, also unlabelled); the drive pulleys are

provided with a drum (fig.2, #32) and an attachment member fixed to a surface of said drum (fig.2, attachment member is unlabelled between #32 and #29), said attachment member having an attachment strip (fig.2, surface located between #32 and #29 with the through hole) fixed thereto and having at least one hole through which a fixing member is securable to the drive shaft, said through hole being spaced from said drum (fig.2, shaft #29 is attached to pulley #25 via a screw hole, unlabelled, through a hub of the pulley, also unlabelled, but located between #32 and #29).

Regarding claim 38, Tsutsui et al. (US 4,728,988) teach an image reading apparatus comprising (fig.4): an optical system for scanning and reading an image (fig.4, #17, #19); a running body including said optical system (fig.4, #3, #4); and a running body moving unit moving said running body by a mechanism transmitting a driving force to said running body through wires wound around a plurality of drive pulleys attached to a drive shaft without slack (fig.4, #1), wherein the drive shaft is provided with screw holes for fixing the drive pulleys to the drive shaft (fig.2, shaft #29 is attached to pulley #25 via a screw hole, unlabelled, through a hub of the pulley, also unlabelled); the drive pulleys are provided with a drum (fig.2, #32) and an attachment member fixed to said drum (fig.2, attachment member located between #32 and #29), said drive pulleys including holes through which fixing screws are passed to be screwed into the screw holes (fig.2, shaft #29 is attached to pulley #25 via a screw hole, unlabelled, through a hub of the pulley, also unlabelled).

Regarding claim 61, Tsutsui et al. (US 4,728,988) teach an imaging apparatus comprising: an image reading apparatus (fig.4), the image reading apparatus

Art Unit: 2852

comprising: an optical system for scanning and reading an image (fig.4, #17, #19); a running body including said optical system (fig.4, #3, #4); and a running body moving unit moving said running body by a mechanism transmitting a driving force to said running body through wires wound around a plurality of drive pulleys attached to a drive shaft without slack (fig.4, #1), wherein the drive shaft is provided with screw holes for fixing the drive pulleys to the drive shaft (fig.2, shaft #29 is attached to pulley #25 via a screw hole, unlabelled, through a hub of the pulley, also unlabelled); the drive pulleys including a drum (fig.2, #32) and an attachment member fixed to said drum (fig.2, unlabelled, located between #32 and #29) having at least one through hole formed therein for inserting a fixing member to secure said attachment member to said drive shaft (fig.2, shaft #29 is attached to pulley #25 via a screw hole, unlabelled, through a hub of the pulley, also unlabelled)

However, Tsutsui et al. (US 4,728,988) fail to teach an attachment hole formed to have an elongation for adjustment.

Regarding claim 31, Nelson (US 1,742,484) teaches a two-part pulley (figs.1&2, part 1 - #16, part 2 - #12) wherein pulley part 1 is attached with a screw through hole #20 into hole #22 of pulley part 2 and wherein at least one of the attachment holes is formed to have an elongation so that a position at which a corresponding one of the pulley parts is attached to the pulley shaft is adjustable with respect to the pulley shaft (fig.2, #20 is elongated and adjustable with respect to the shaft of #12).

Regarding claim 38, Nelson (US 1,742,484) teaches a two-part pulley (figs.1&2, part 1 - #16, part 2 - #12) wherein pulley part 1 is attached with a screw through hole

#20 into hole #22 of pulley part 2 and wherein at least one of the attachment holes is formed to have an elongation so that a position at which a corresponding one of the pulley parts is attached to the pulley shaft is adjustable with respect to the pulley shaft (fig.2, #20 is elongated and adjustable with respect to the shaft of #12).

Regarding claim 61, Nelson (US 1,742,484) teaches a two-part pulley (figs.1&2, part 1 - #16, part 2 - #12) wherein pulley part 1 is attached with a screw through hole #20 into hole #22 of pulley part 2 and wherein at least one of the attachment holes is formed to have an elongation so that a position at which a corresponding one of the pulley parts is attached to the pulley shaft is adjustable with respect to the pulley shaft (fig.2, #20 is elongated and adjustable with respect to the shaft of #12).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the pulley/shaft attachment of Tsutsui et al. (US 4,728,988) with the adjustment feature of elongated holes of Nelson (US 1,742,484) in order to provide another mode of adjustment of the location of the pulley along the wire by being able to rotate it slightly along the periphery of the shaft, thus allowing one to improve image quality by keeping the carriage path parallel to the original document (as necessitated in Tsutsui et al. col.1, ln.47-63).

However, while Tsutsui et al. (US 4,728,988) shows an attachment hole in the hub, Tsutsui et al. (US 4,728,988) further fail to definitively teach an attachment member having at least one through hole formed therein for inserting a fixing member to secure said attachment member to said drive shaft.

Regarding claim 31, Rampe (US 4,946,427) teach a pulleys attached to a drive shaft (fig.3, #100 attached to #104), wherein the drive shaft is provided with screw holes for fixing the drive pulleys to the drive shaft (fig.3, shaft #104 is attached to pulley #100 via a screw hole, unlabelled, #80 partially enters #104); the pulley is provided with a drum (fig.3, #214) and an attachment member fixed to a surface of said drum (fig.3, #212) said attachment member having an attachment strip (fig.3, surface located in the vicinity of #108) fixed thereto and having at least one hole through which a fixing member is securable to the drive shaft (fig.3, hole #108, fixing member #80, shaft #104), said through hole being spaced from said drum (fig.3, hole #108 is spaced from #214).

Regarding claims 38 and 61, Rampe (US 4,946,427) teach a pulley utilizing an attachment member having an attachment strip (fig.3, #108) fixed thereto and having at least one through hole (fig.3, part which takes #80) formed therein for inserting a fixing member (fig.3, #80) to secure said attachment member to said drive shaft (fig.3, #104; col.6, ln.47-53).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the attachment strip on the pulley of Tsutsui et al. (US 4,728,988) with the through holes and fixing member of Rampe (US 4,946,427) in order to connect the pulley securely to the shaft (col.6, ln.52-53).

Claims 32-35, 39-42, and 62-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsutsui et al. (US 4,728,988) in view of Nelson (US 1,742,484) and in view of Rampe (US 4,946,427) for the reasoning provided in the first office action.

Claims 36, 37, 43, 44, 66, and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsutsui et al. (US 4,728,988) in view of Nelson (US 1,742,484) and in view of Rampe (US 4,946,427) as applied to claims 31, 38, and 61 above, and further in view of Watanabe et al. (US 5,441,456) for the reasoning provided in the first office action.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Response to Arguments

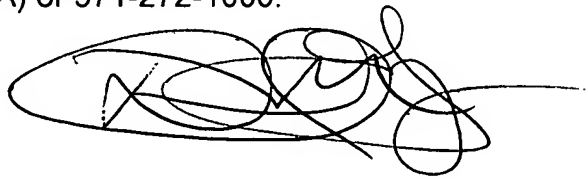
Applicant's arguments with respect to claims 1-83 have been considered but are moot in view of the new ground(s) of rejection.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura K. Roth whose telephone number is (571)272-2154. The examiner can normally be reached on Monday-Friday, 7:30 am to 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David M. Gray can be reached on (571)272-2119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'DM Gray', enclosed within a large, loopy oval shape.

LKR
7/5/2006

DAVID M. GRAY
SUPERVISORY PATENT EXAMINER

Application No. 10/072,998
Reply to Office Action of January 17, 2006.

IN THE DRAWINGS

The attached sheets of drawings include changes to Figs. 7 and 8. These sheets, which include Figs. 7 and 8, replace the original sheets including Figs. 7 and 8.

Attachment: Replacement Sheets (2)

Accepted
JHK
7/3/06